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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Zhikai Wang

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EXAMINER

LEONARD, MICHAEL L

ART UNIT

PAPER NUMBER

1763

NOTIFICATION DATE

DELIVERY MODE

05/12/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/584,299	Applicant(s) WANG ET AL.	
	Examiner MICHAEL LEONARD	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-25 and 27-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-25 and 27-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/09/2010 has been entered.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 17-25 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,189,781 to Acevedo et al. in view of U.S. Patent No. 4,587,201 to Morikawa et al. as evidenced by U.S. Patent No. 7,141,616 to Hecht et al.

As to claims 17 and 30-31, Acevedo discloses a radiation-curable polymer that can be present in the composition greater than 20% (encompasses 100%) of a polybutadiene urethane diacrylate (Column 10, lines 29 and 53-56) and a tackifying agent which is present from about 0 to 10% by weight (Column 15, lines 64-66). Acevedo further discloses wherein the sealant composition can be cured using radiation as well as pressure-sensitive mercury lamps (Column 16, lines 57 and 63). Acevedo

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discloses wherein a polyurethane prepolymer which is the reaction product of polyisocyanates and polyols such as polydiene block polyols (Column 6, lines 1-15) as well as acrylic polyols, then is chain-terminated with an hydroxy-functional methacrylate to produce terminal unsaturation (Column 4, lines 28-50, Column 3, lines 54-56).

Acevedo discloses mixtures of acrylic polyols and polybutadiene polyols, but fails to exemplify wherein some of polybutadiene polyols in the polybutadiene urethane diacrylate are replaced with acrylic polyols.

Morikawa discloses a radiation-curable diacrylate terminated polyurethane (Abstract) prepared from polyurethane prepolymer which is the reaction product of polyisocyanates and polyols such as polydiene block polyols, which is chain-terminated with an hydroxy-functional methacrylate to produce terminal unsaturation (Abstract, Column 2, lines 9-69). Morikawa goes on to disclose that up to 40% of the polybutadiene polyols can be replaced with polacrylpolyols (Column 3, lines 51-56) as well as acrylic polyols, then is chain-terminated with an hydroxy-functional methacrylate to produce terminal unsaturation.

Therefore it would have been obvious to use a combination of polacrylpolyols and polybutadiene polyols as disclosed by Morikawa and Acevedo since they are disclosed as being preferred for analogous polyurethane systems, and it is prima facie obvious to add a known ingredient to a known composition for its known function. *In re Lindner* 173 USPQ 356; *In re Dial et al* 140 USPQ 244.

Also, a person would be motivated to use a combination of each because it results in final properties of the adhesive which are attributed to each polyol used, which

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allows for easy fluctuation of adhesive properties based on the polyol and the amount of polyol used via routine experimentation as evidenced by Hecht, who discloses polybutadiene-containing urethane(meth)acrylates show excellent elastic properties, but they are readily discolored from sunlight and wherein polyacryl-containing urethane(meth)acrylates leads to improvements in impact strength, elasticity, high hardness, and less swelling (Column 1, lines 53-67). As a result, a person of ordinary skill could routinely change the amount of each polyol based on the desired properties of the resulting adhesive using the knowledge disclosed above.

Acevedo fails to disclose the structure of the polyurethane oligomer.

However, due to the substantially identical makeup of the composition and the fact that the composition is radiation curable would lead a person of ordinary skill in the art to a structure with terminal unsaturated groups provided by component (b) and random blocks of polyols derived from rubber and acrylic polyols as evidenced by Acevedo (Column 3, lines 40-67).

As to claims 18-20, Acevedo discloses molecular weight of 2000 to about 50,000 (Column 4, lines 18-25).

As to claim 21 with regards to the density of radiation curable functional groups, the Office realizes that all of the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. density of radiation curable functional groups would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicants' position that this would not be the case: (1) evidence

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would need to be provided to support the applicants' position; and (2) it would the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

As to claim 22, Acevedo Acevedo discloses wherein a polyurethane prepolymer which is the reaction product polyisocyanates and polyols such as polydiene block polyols (Column 6, lines 1-15) as well as acrylic polyols, then is chain-terminated with an hydroxy-functional methacrylate to produce terminal unsaturation (Column 4, lines 28-50, Column 3, lines 54-56).

As to claims 23 and 29, Acevedo fails to disclose a film laminate, however, it is maintained that it would have been obvious to one have ordinary skill in the art to have produced a film laminate, as the molded article which is produced from patentees' process with the reasonable expectation of success. This is because teaching of "desired final products" implicitly suggest the production of any conventional product, inclusive of laminates, to one having ordinary skill in the art.

As to claim 24, Acevedo discloses polybutadiene polyols.

As to claim 25, Acevedo discloses acrylic polyols that meet said limitation (Column 10, line 47).

As to claim 27, Acevedo discloses hydroxyethyl acrylate as a terminating agent (Column 7, lines 5-15).

As to claim 28, Acevedo discloses 0 to 10% by weight tackifiers, which sits outside the claimed range, nevertheless it would have been obvious to increase this amount based on the final product (Column 15, lines 1-67).

Response to Arguments

Applicant's arguments filed 12/09/2010 have been fully considered but they are not persuasive. Applicants argue that the claimed invention has not been rendered obvious by Acevedo for 3 reasons.

1) The first being that Acevedo discloses a dual-cure adhesive (radiation-curable and moisture curable and the claimed composition does not include a second functional group capable of moisture cure.

2) The second being that the formulation of the present invention requires a weight ratio of rubber derived polyol to acrylic derived polyol from 0.1 to 10.

3) The third being that Acevedo compositions are unsuitable as pressure sensitive adhesives.

In response to issue 1), Acevedo discloses a radiation-curable polymer that can be present in the composition greater than 20% (encompasses 100%) of a polybutadiene urethane diacrylate (Column 10, lines 29 and 53-56) and a tackifying agent which is present from about 0 to 10% by weight (Column 15, lines 64-66). Acevedo further discloses wherein the sealant composition can be cured using radiation as well as **pressure-sensitive** mercury lamps (Column 16, lines 57 and 63). As a result, the composition of Acevedo does not have to be dual-cure. Furthermore, the claims contain comprising language and as such, dual-cure capability can further be encompassed by the claims as written.

In response to issue 2), the applicants failed to provide data showing the significance of the broad range of acrylic polyol to rubber polyol, essentially the acrylic

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polyol can be present from around 5% to 95% by weight, which is a broad range and clearly because Acevedo discloses mixtures of such polyols, the broad range is encompassed by such. Also, the properties of the adhesive are attributed to the type of polyol used and a person would be motivated to use a combination of each because it results in final properties of the adhesive which are attributed to each polyol used, which allows for easy fluctuation of adhesive properties based on the polyol and the amount of polyol used via routine experimentation as evidenced by Hecht, who discloses polybutadiene-containing urethane(meth)acrylates show excellent elastic properties, but they are readily discolored from sunlight and wherein polyacryl-containing urethane(meth)acrylates leads to improvements in impact strength, elasticity, high hardness, and less swelling (Column 1, lines 53-67). As a result, a person of ordinary skill could routinely change the amount of each polyol based on the desired properties of the resulting adhesive using the knowledge disclosed above. In particular, a person of ordinary skill in the art could create a viscous and elastic adhesive based on the teachings provided above and the knowledge that changes in polyol concentration allows for easy fluctuation of adhesive properties.

In response to issue 3), Acevedo discloses a 100% radiation-curable composition containing the same reactants as well as wherein the composition can be cured by pressure-sensitive lamps, which encompasses pressure-sensitive adhesives. In other words, Acevedo allows for a non-dual cure system and only a system containing radiation-curable functional groups (See Column 4, lines 47-57 and Column 10, line 30).

Response to Amendment

The Declaration under 37 CFR 1.132 filed 12/09/2010 is insufficient to overcome the rejection of claims 17-25 and 27-31 based upon U.S. Patent No. 7,189,781 to Acevedo et al as set forth in the last Office action because: The declaration discloses wherein PSAs are viscous and elastic and that the Acevedo fails to disclose the composition of claim 17 because the radiation curable composition of the claimed invention is solely radiation curable and is not a dual cure (radiation curable and moisture curable) composition as is Acevedo's. Acevedo discloses a radiation-curable polymer that can be present in the composition greater than 20% (encompasses 100%) of a polybutadiene urethane diacrylate (Column 10, lines 29 and 53-56) and a tackifying agent which is present from about 0 to 10% by weight (Column 15, lines 64-66). Acevedo further discloses wherein the sealant composition can be cured using radiation as well as pressure-sensitive mercury lamps (Column 16, lines 57 and 63). As a result, the composition of Acevedo does not have to be dual-cure. Furthermore, the claims contain comprising language and as such, dual-cure capability can further be encompassed by the claims as written.

Also, the properties of the adhesive are attributed to the type of polyol used and a person would be motivated to use a combination of each because it results in final properties of the adhesive which are attributed to each polyol used, which allows for easy fluctuation of adhesive properties based on the polyol and the amount of polyol used via routine experimentation as evidenced by Hecht, who discloses polybutadiene-containing urethane(meth)acrylates show excellent elastic properties, but they are

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readily discolored from sunlight and wherein polyacryl-containing urethane(meth)acrylates leads to improvements in impact strength, elasticity, high hardness, and less swelling (Column 1, lines 53-67). As a result, a person of ordinary skill could routinely change the amount of each polyol based on the desired properties of the resulting adhesive using the knowledge disclosed above. In particular, a person of ordinary skill in the art could create a viscous and elastic adhesive based on the teachings provided above and the knowledge that changes in polyol concentration allows for easy fluctuation of adhesive properties.

The Declaration under 37 CFR 1.132 filed 12/09/2010 is sufficient to overcome the rejection of claims 17-25 and 27-31 based upon Norlin.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL LEONARD whose telephone number is (571)270-7450. The examiner can normally be reached on Mon-Fri 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Milton I. Cano/
Supervisory Patent Examiner, Art Unit 1763

/MICHAEL LEONARD/
Examiner, Art Unit 1763